

## Product Summary

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> Max (V) T <sub>A</sub> = +25°C	I <sub>R</sub> Max (μA) T <sub>A</sub> = +25°C
40	1.0	0.55	100

## Features and Benefits

- Low-Forward Voltage Drop
- Low Reverse Leakage
- Excellent High-Temperature Stability
- Patented SBR® (Super Barrier Rectifier) Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SBR1A40S3Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Applications

- DC-DC converters
- Mobile telecoms
- Charging circuits
- Motor controls

## Mechanical Data

- Package: SOD323
- Package Material: UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.004 grams (Approximate)

SOD323



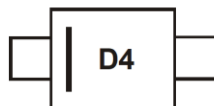
Top View

## Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR1A40S3Q-7	SOD323	3,000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



D4 = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current	I <sub>O</sub>	1	A
T <sub>C</sub> = +65°C			
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I <sub>FSM</sub>	20	A

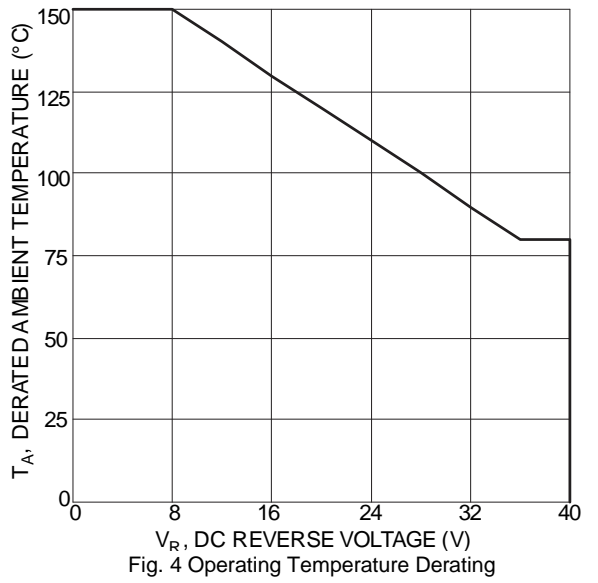
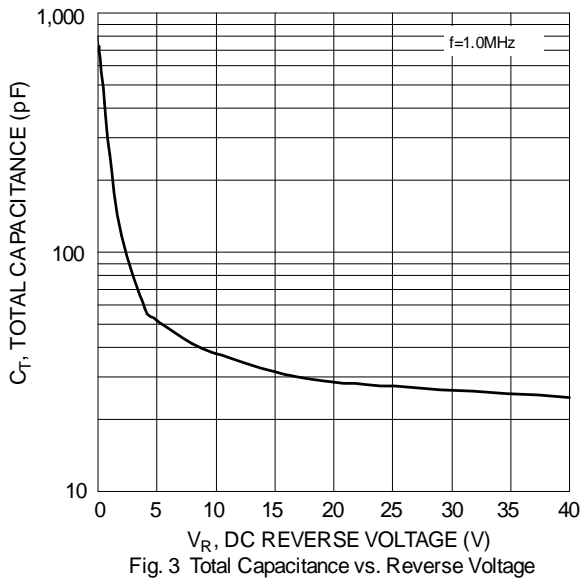
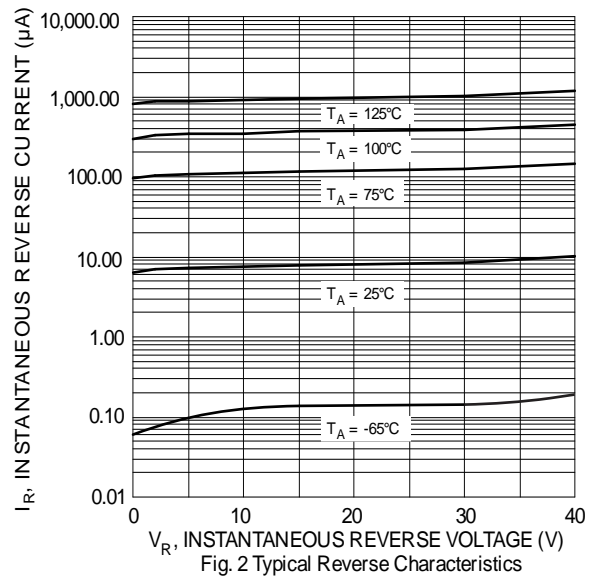
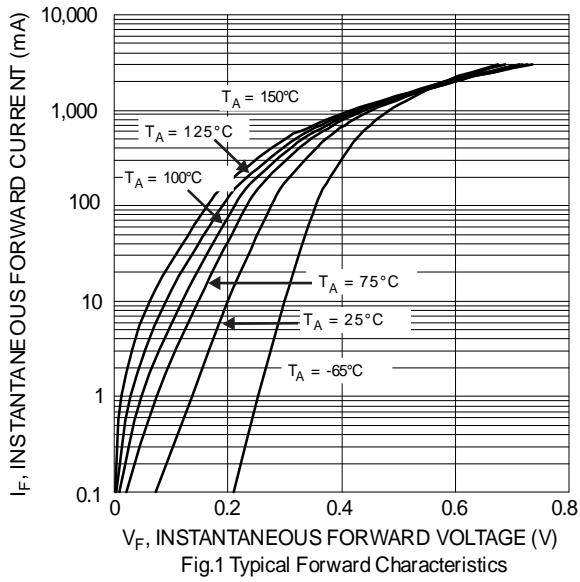
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	400	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	300	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage Drop	V <sub>F</sub>	—	—	0.55	V	I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C
Leakage Current (Note 7)	I <sub>R</sub>	—	10	100	μA	V <sub>R</sub> = 40V, T <sub>J</sub> = +25°C
Junction Capacitance	C <sub>J</sub>	—	55	—	pF	V <sub>R</sub> = 4.0V, f = 1MHz
Reverse-Recovery Time	t <sub>RR</sub>	—	19	—	ns	I <sub>F</sub> = 10mA, I <sub>RRM</sub> = 0.1I <sub>R</sub> T <sub>A</sub> = +25°C

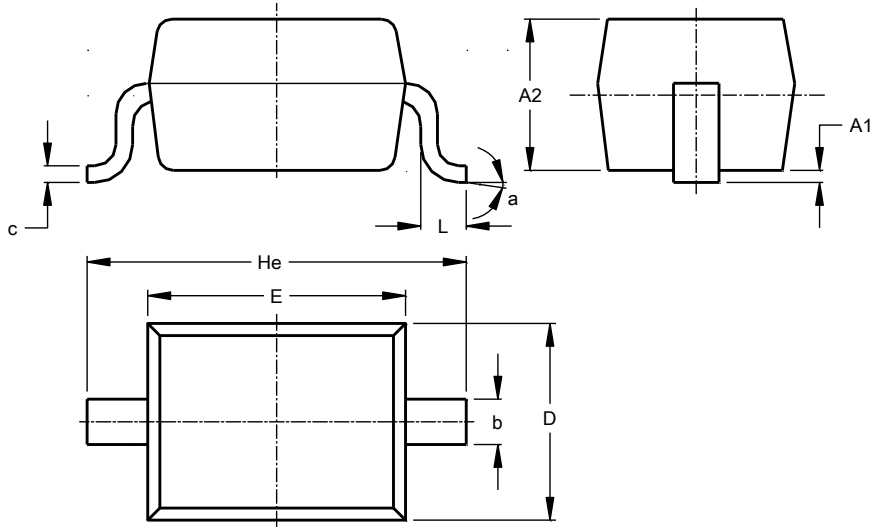
Notes: 5. FR-4 PCB, 2oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.  
6. Polyimide PCB, 2oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.  
7. Short duration pulse test used to minimize self-heating effect.



**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD323

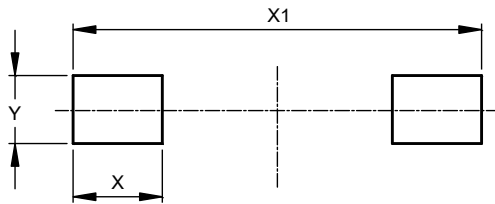


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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